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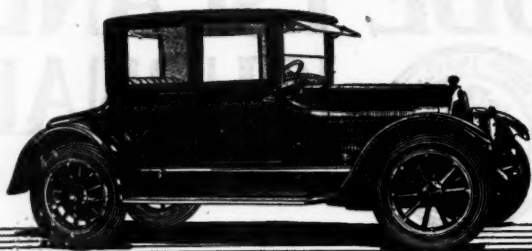
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## ORIGINAL ARTICLES

### ADVANCES IN THE SURGERY OF THE EXTREMITIES DURING THE WAR.\*

By MURRAY S. DANFORTH, M. D.,  
Providence, R. I.

*Mr. President, Members of the Rhode Island  
Medical Society, and Guests:*

The advances in Surgical treatment in general have been varied and marked during the past five years, during which many new problems have arisen, and old problems made important by the great number of patients involved. Even in the extremities the topics which could be taken up are numerous. In my paper I wish to consider chiefly those conditions and their methods of treatment with which I came in personal contact. Also I wish to consider the conditions in which the new methods and principles are applicable to civil practice. What has been learned from a study of a great many cases must be made use of now in the treatment of the individual patient in our work to-day.

Among the extremity injuries, fractures took a very urgent place and the methods used in the treatment of some of them I wish to discuss first. Of the fractures, those of the former hold perhaps first place. My first recollection of this fracture in Medical School years is of seeing a patient lying in bed with a weight at the foot of the bed for traction on the lower fragment, and with a long board splint and coaptation splints for maintaining the fragments in position. With that method a result in a simple fracture was rated as good when the shortening was not more than an inch, or even an inch and a half. This meant a limp and subsequent back strain and a not inconsiderable disability. From the early days of the war certain surgeons undertook an intensive study of the treatment of wounds of the thigh complicated by fracture. Sinclair

perhaps stands out as the surgeon who first made great progress in perfecting methods and developing a line of treatment which resulted in markedly better functional results.

His method was based on the use of the Thomas splint, practically unmodified, but with certain very helpful accessories, as the Sinclair skate. His traction was obtained by means of elevating the foot of the bed. Briefly, traction strips, as in the old Buck's extension, were applied to the sides of the extremity from the level of the fracture down to the ankle. The strips were either of moleskin or of gauze. If of gauze, they were fastened to the skin by special glue. The Thomas splint consists of a ring which fits around the thigh at the groin and is attached to uprights running from the ring down the sides of the leg to below the foot, where they are joined. After applying the traction strips the splint is put in place and the traction strips tied to the lower end of the splint. The leg is then supported in this splint by five inch wide strips of canton flannel, or other firm material, placed as slings running from one of the uprights of the splint under the leg to the other upright. The normal contour of the limb may be regained by varying the tension on these slings. The lower end of the splint was then fastened to the lower end of the bed and the lower end of the bed elevated. When thus adjusted the sliding upwards in bed of the patient from his own weight exerted a constant and very strong pull upward on the upper fragment. Sinclair had all his femur cases segregated, and then trained his medical assistants and his nurses to care for this particular type of injury. By these means it was possible to get efficient traction and efficient fixation for twenty-four hours out of every day. The results warranted the efforts which were made. It was my good fortune to see some of his work at Boulogne, watch the application of the splints and examine the patients undergoing treatment. He claimed to get nearly, or quite, full length in all cases treated at his hospital. The measurements that I was able to

\* Read before the Rhode Island Medical Society, December 4, 1919.

make, and the study of the X-rays of his patients, perhaps did not fully warrant the assumption of complete restoration of length, but practically every case did show less than one half inch of shortening, and in many instances the fractured leg was as long, and sometimes slightly longer, than the uninjured one. To gain more extension, and to maintain the traction at the times that the traction strips were being changed, he devised a skate which was practically a piece of wood a little longer than the foot and slightly wider. This was fastened onto the sole of the foot by means of strips of flannel fastened to the splint and glued to the sides and dorsum of the foot. The skate was then fastened to the lower end of the splint and was simply an additional traction on the lower fragment. Sinclair's method was of very great use and showed a great improvement in results as compared with those obtained by previous methods. A disadvantage was that in some of the cases in which there was much suppuration in the thigh, gravity due to the bed elevation tended to cause the pus to extend up the thigh.

Pearson at Edmonton, England, at one of the American hospitals, developed another method. In this also the Thomas splint was the foundation of the principle and the splint was attached to the lower end of the bed as in Sinclair's work. Instead, however, of attaching the lower ends of the traction strips to the lower end of the splint they were attached to a cord running over a pulley at the foot of the bed and thence to a heavy weight. In this case the fixed point for counter pressure was the tuber ischii, against which the ring of the splint rested. Thus the lower fragment was pulled downward while the upper fragment was held fixed by the pelvis. To keep the ring in position and prevent its riding upward over the ischial tuberosity, a cord ran from the ring of the splint up to a pulley on a frame over the bed and then to another pulley at the head of the bed and from there to a weight. In many of the cases, instead of using traction strips applied to the sides of the limb, so-called ice tongs were used. The instrument is actually like a pair of ice tongs, the points being inserted into the sides of the femur at the supracondylar ridges. This so-called skeletal traction is undoubtedly more effective in gaining length and controlling the lower fragment. The

application is very simple, being done under local anaesthesia, and is probably less painful than the continuous pull on the skin such as occurs in using a Buck's extension.

In the treatment of between one hundred and fifty and two hundred cases of femur fractures that I supervised at one of the Base Hospitals at Savenay, I had the opportunity of trying out on a large number of cases (large number from a civil point of view) the two methods of traction, the one with the bed elevation and the one with weight and pulley as a means of traction. The bed elevation method is more easily carried out and requires less constant supervision, but when the other method is well carried out I believe there is no material difference in the results obtained. My deductions are drawn from results which were obtained on fractures which were beginning to unite or were united in mal-position, either as regards angulation or unnecessary shortening, and required refracture. Measurements and X-rays showed a gain of from one half to three quarters of the original shortening. Many cases showing two inches of shortening before traction showed only one quarter to one half inch after treatment.

Details of treatment such as massage about the knee, early movement of the knee, refraining from weight bearing until firm union is present and then only with a walking caliper, can only be mentioned by name. The bed-side X-ray unit must be given much credit for what has been accomplished in improving our knowledge of the essentials of treatment.

The same principles of traction and slinging the leg in combined fractures of the tibia and fibula are employed, but the old results were good as a rule and not as much chance for improvement was present for that reason.

Similar methods of traction were found applicable for fracture of the humerus and proved very effective and satisfactory.

In the study of large numbers of fractures certain deformities and disabilities were found to occur. Knowledge of these will help in the individual case. In the upper extremity fractures near the head of the humerus are likely to result in limited abduction. Therefore, treat this fracture with the arm abducted. Fractures of the radius above the wrist are likely to result in limited supination; therefore, treat this frac-



ture with the forearm supinated. Multiple carpal fractures result in limited dorsi-flexion of the wrist; therefore, treat with the wrist dorsi-flexed. Leg fractures (tibia and fibula combined), if treated in a Thomas splint almost always result in an internal rotation of the lower fragment. Therefore, treat with this point in mind. Pott's fractures and fractures of the tarsus frequently result in limited dorsi-flexion of the foot. I think one of the surprising things to me was how disabling a simple Pott's fracture could prove, and the chief disability was the limited dorsi-flexion.

The discussion of positions for treatment to prevent limited movement in joints capable of motion leads to the question of position of choice for ankylosis in cases where movement will be lost. Gunshot wounds involving joints with or without comminuted fractures of one or more of the bones very frequently resulted in ankylosis with consequent disability from loss of the usual movements. It was learned however that in almost all joints a position could be found that would minimize the loss of function and it seems to me worth while to take up some of the more important joints and specify the positions that much study and trial proved of the greatest utility. An opportunity for learning the best positions could only come in a study comprising a great number of cases such as have been presented by the war casualties. A realization that certain wounds are likely to cause ankylosis, and treatment with the knowledge in mind that certain positions make the best limbs for function will do much to shorten the period before a patient's occupation can be resumed.

**THE SHOULDER JOINT:** Ankylosis with the arm abducted about  $70^{\circ}$ , brought forward so that the elbow is about in the plane of the front of the chest and externally rotated so that when the elbow is flexed to a right angle the wrist will be one or two inches above the level of the elbow, will give an excellently functioning arm. The movement of the scapula will permit of most surprising use of the extremity for almost all forms of work and gives a very strong useful arm.

**THE ELBOW:** The position of choice depends upon the occupation of the individual, but it is usually an angle of about  $100^{\circ}$ . For a farmer it may be  $110^{\circ}$ ; for a man doing clerical

work it may be  $90^{\circ}$ ; for a machinist about  $100^{\circ}$ . The position also depends somewhat upon which arm is involved.

**THE FOREARM:** Ankylosis in a position mid way between supination and pronation for the left forearm, and a little pronated from mid position for the right forearm, proved after many trials the most desirable. Here again occupation is a factor in making the decision.

**THE WRIST:** Ankylosis should always be with the hand moderately dorsi-flexed. In stiffened hands, frequently restoration of use was found to hinge upon getting first a dorsi-flexed position at the wrist. This seemed not to have been recognized previously, nor in fact during the first years of treating battle casualties.

**THE HIPS:** Many factors are important in determining the position of choice. The amount of shortening helps to determine the amount of abduction. The occupation helps to determine the amount of flexion. In our experience it is desirable to abduct the hip just enough to make the affected leg apparently a little shorter than the sound one, when the two are lying parallel. Too much abduction causes walking to be very difficult, and standing very fatiguing, on account of the resultant back strain. Fixation with about  $35^{\circ}$  to  $40^{\circ}$  of flexion at the hip instead of in a straight position makes sitting much easier and in standing such a patient shows only a very slightly exaggerated lumbar lordosis. In patients whose occupation requires chiefly sitting even  $40^{\circ}$  to  $45^{\circ}$  is probably desirable.

**THE KNEE:** The same two factors as for the hip are of importance in this decision,—the amount of shortening of the leg already present and the occupation of the patient. If there is no shortening, or only a very small amount,  $20^{\circ}$  to  $30^{\circ}$  of flexion makes a limb that is almost as satisfactory for standing as a straight one and much less in the way in sitting. Twenty degrees of flexion makes walking rather easier than with a straight leg. For a sedentary occupation,  $35^{\circ}$  of flexion is very desirable. On the other hand, when there is already considerable shortening any added shortening due to flexion is to be avoided.

**THE ANKLE:** In this the desirable position is not as a rule difficult to decide. Unless there is shortening of the leg, a right angle position, or possibly  $5^{\circ}$  below a right angle, makes the

most satisfactory walking foot. If the tibioastragalar joint is fixed at this angle use and treatment will so increase the flexibility of the mid tarsal joints as to largely compensate for the loss of movement in the ankle joint proper. Great care must be taken though to avoid any varus or valgus in the relation of the os calcis and astragalus to the tibia, otherwise the balancing of the foot will be poor and both standing and walking difficult.

Another complication in the treatment of wounds of the extremities with bone injury is osteomyelitis. A great amount of study and experiment have been carried out in endeavors to cure this condition. Months after most of the battle wounds have healed one finds suppurating wounds persisting, due to bone infection. Early in the war Carrel of France and the Rockefeller Institute and Dakin, an English chemist, worked out a disinfecting solution for use in cleansing wounds. Dakin evolved the solution and Carrel the technique. Many modifications of the solution and many new disinfecting solutions have been tried and many changes in the technique of treating the wounds attempted, but it seems to me from what I have seen that the so-called Carrel-Dakin solution used mainly according to the technique worked out under Carrel has proved the most satisfactory. The operative part of the treatment found most efficacious does not represent a great advance over that carried out for several years previous to the war by some of our best surgeons interested in the problem. That comprised a most thorough removal of all infected areas, both in the bone and soft parts, combined with great care to avoid spreading the infection to the adjoining healthy tissue. It amounted practically to going clear of the infected area, somewhat as one goes clear of the affected area in removing new growths. In spite of the most careful technique not all the infected tissues could be eradicated, and recrudescences were common. Some method to complete the disinfection was needed. The Dakin solution as used in cleansing soft part wounds certainly, at least in part, fulfilled the requirements. It is not a "cure-all" and is effective only when all details are scrupulously watched. In osteomyelitis due to gunshot wounds a careful dissection of all macroscopically affected soft parts and bone, fol-

lowed by treatment with Dakin solution with correct technique, frequently resulted in a short time in producing "sterile" wounds. Then at a secondary operation closure could be made. For filling the cavities in the bones when necessary at the secondary closure, muscle proved the best tissue where it could be used without injuring the function of the extremity. In other instances, a large flap of fat with a broad pedicle could be turned down into the cavity. Fatty tissue however does not resist infection as well as muscle and is second choice. Nevertheless, in a number of instances of deep cavities about the sacro-iliac joint, following removal of affected bone and sterilization with Dakin solution a wide flap was turned down into the wound with success.

Osteomyelitis of civil life unless incident to compound fractures, it seems to me, is a somewhat more difficult problem. Here we have a bone infection resulting from bacteria which are already present in the patient's system. From the anatomical peculiarities of the arterial system the bacteria find lodgment in the bones and the lack of resistance of the individual permits their growth and consequent necrosis of the bone. A very extensive involvement frequently follows, and also metastasis to other bones, or, possibly due to lessened resistance, new bones are infected from the original source. In any event, the infection in the given bone is more frequently wide spread, making eradication difficult and the lowered general resistance makes absolutely complete sterilization harder, but at the same time more necessary, if a cure is to be obtained. I do believe, though, that application of the methods developed during the care of osteomyelitis from gunshot wounds will enable us to more efficiently treat the osteomyelitis that we see in civil practice.

The presence of infection resulted in many instances in non-union of fractures, so that much of value has been contributed to our knowledge of treating this condition. Experience early showed the necessity of waiting for a considerable time after healing before any operative attempts could be made to obtain union. From two to six months were found necessary, and even then a recrudescence of the infection might result. Some help as to the probable necessary length of time of waiting could be obtained from

the character of the scar and the duration of the previous suppuration. If a bone graft was to be used, it was the custom of many surgeons to do a primary operation at which as much of the scar tissue as might be was excised, also a bit resected from the ends of the fragments, or even grooves made if the plan was to use inlay grafts. When this procedure was used, if a recrudescence occurred, it was not as serious and long continued as if no graft was in place to act as a foreign body, and the patient did not have the added operative area on the shin. On the other hand, if no recrudescence occurred, the graft could be removed from the tibia and placed in position at a secondary operation with much greater certainty of a successful result.

In my experience, inlay grafts from the tibia were the most satisfactory. Some intramedullary grafts do hold the fragments in good position but do not, I believe, result as often in union as is the case of well implanted inlay grafts. The need of extending the graft into freely bleeding bone in both fragments should be emphasized. If you hold to the theory that the graft acts only as a bridge, the eburnated bone at the ends of the fragments does not produce new bone to grow across the bridge. If you hold that the graft lives and grows, then also it must be necessary for it to come in contact with normal bone to which it can unite and from which it can get some of its nourishment. The value of autogenous bone grafting has never been more apparent than now. It will give union in cases of long continued non-union of the long bones. It will give union and restore length in cases of loss of substance in the radius or ulna, or in the tibia. A graft can restore loss of substance in the tibia where as much as one half of the shaft is absent. A graft will act as an internal splint in fractures, where even at open operation the fragments cannot be held in good opposition by themselves. However, except in a few instances of oblique fractures, grafts should not be required as splints.

When we consider a graft in its use as a splint, the question of a graft made from boiled beef bone must be taken up. In such a case we wish only a splint and it is not required that the substance should be one that will become a living bridge of bone. In this condition the ends of the fragment will unite of themselves once they are

held in good apposition. For this a section of the desired shape cut from a beef bone and boiled may be inserted. It need not be very large, and is not as likely to act as a foreign body, as is the case if a metal plate is used with screws to hold it in place. I do not believe, however, that it is desirable to insert such a beef bone graft as an intramedullary splint, but rather as an inlay graft.

Metal plates were used to a considerable extent, but I think their questionable desirability is shown by the experience of many who found it necessary to remove such plates, either because they acted to hold the fragments apart and thus prevented union, or as foreign bodies keeping up suppuration. In a number of cases in my comparatively small series, I had to remove metal plates which were acting as foreign bodies in keeping up suppuration. This in itself is not a serious indictment, for infected bone grafts do the same, but also I removed a number of plates which were definitely holding the fragments apart and absolutely preventing union. I cannot but believe that the role of the metal bone plate is a very small one.

Leaving the field of bone and joint injuries, one may enter that of nerve injuries and the resultant complications. Previous to 1914 few men had seen a dozen cases of direct nerve injury, and fewer surgeons had operated upon as many. Battle wounds produced hundreds and even thousands of such injuries, varying in degree from a slight contusion causing temporary paralysis, to a complete division causing permanent loss of function. In various orthopaedic centers in Great Britain an intensive study of these conditions was begun in an attempt to differentiate those in which there was division from those in which there was only contusion or crushing from which a spontaneous recovery might be expected. Finally certain examinations and tests were found which gave much of the information needed. Outlining the changes in cutaneous sensibility and determining the responses of the muscles to faradic and galvanic stimulation had been done for many years to determine the condition of the nerves controlling the affected area, but almost more information was obtained from testing the voluntary power in the individual muscles and this was rather a new attempt. Great care was re-

quired to do this accurately. It is undoubtedly more difficult to learn than it is to learn the electrical testing, but the information gained was of more value. Voluntary power may be present where there is no response to a faradic current as ordinarily used, and when voluntary power is present there must be both anatomical and physiological nerve continuity. In the absence of any evidence of physiological continuity as determined by the cutaneous sensibility tests, electrical tests and voluntary power tests, Tinel's sign might still give almost indisputable evidence that there were at least a few fibres passing through the lesion.

The probable condition of the nerve having been determined, the next step was to decide upon the treatment. Here again the study of the great numbers of patients enabled one to make deductions which had never been possible before. In cases where there was found at the first examination evidence of entire loss of physiological continuity, it was not safe to assume there would be no return unless a very long interval had elapsed since the healing of the wound. Practice varied as to the length of time it was thought justifiable to wait before exploration. At the center where I was, two months were allowed. Then, if all the tests showed no change, exploration was done. In some places the waiting time was one month, in others from four to six months. We found, however, that if two months showed absolutely no change, change seldom came later, and we felt valuable time was lost by waiting longer. The conditions found at operation, I may say, were almost invariably worse than the previous examinations suggested.

End to end, suture proved to be the only method of repairing a complete division that promised much for a result. Side anastomoses promise little. Grafts to restore loss of substance may be of some value, but not sufficient time has elapsed to know the results in any large series of cases. We have learned, however, that with a carefully done end to end suture, the sutures being placed only in the sheath, the nerve is reasonably certain to show regeneration. I had the satisfaction of seeing this proved in a considerable number of cases of my own, and also in a larger number done by Sir Harold Stiles

and Major W. I. Baldwin at the Edinburgh War Hospital.

Peripheral nerve surgery can never play an important part in civil surgery, for direct nerve injuries requiring operative intervention are very few in civil life, but certain associated conditions may occur which are not unlike those found in the paralysis due to anterior poliomyelitis, and justify our studying the technique and result of tendon transplantation and tendon fixations. One of the most pleasing tendon transplantations was that for wrist drop, due to irreparable damage to the musculo-spiral nerve. For years various transplantations have been done for this condition, for it does occur occasionally in civil practice. In war work it was found that while certain substitutions of flexor tendons would supply some of the lost movements, the problem was not only one of substituting tendons, but was one of balancing the various movements. The flexor carpi radialis may act very satisfactorily in extending the fingers when grafted onto the extensor communis digitorum, but to make the hand a useful one for work the wrist must be under control and well balanced. After many attempts and much study of the actual actions of the muscles, both singly and in groups, the following was found to be perhaps the most satisfactory transplantation:

The flexor carpi radialis into the extensor ossis metacarpi pollicis and the extensor brevis pollicis, the palmaris longus into the extensor longus pollicis, the flexor carpi ulnaris into the extensor minimi digiti, extensor communis digitorum and the extensor indicis. This gave good function for the fingers and thumb.

The pronator radii teres was transplanted into the extensors carpi radialis longior and brevior. The work done for this condition and a careful comparison of results gave us much information of value regarding the technique of the operation and also of the absolute necessity of as complete an understanding as possible of the various factors included in the balance of an extremity.

Not as much that was new was found in transplantation in the foot, but in complete permanent paralysis of the muscles supplied by the external popliteal nerve some very satisfactory tendon fixations were done. These had been done in children before. The tibialis anticus tendon was



divided about six inches above the ankle joint and the upper end of the lower portion passed from within outwards through a tunnel made in the tibia four inches above the ankle joint. The peroneal tendons were divided at the same level as the anticus tendon and passed through the same tunnel from without inwards, the opposite tendons then being sutured to each other and covered over periosteum lifted up from the tibia. The best position for holding the foot at the first dressing after operation was to have it neutral as regards varus and valgus, or in very slight valgus, and as regards flexion or extension at the ankle, to have it a little above a right angle. The tendon will stretch a little and the final result should be a right angle or few degrees below. This gave a good walking or standing foot for which no brace was required, and freedom from apparatus is a great asset.

Each individual patient is a study in himself and no generalizations can be made as to proper treatment in the special case where one or more muscles are paralyzed. Often a tendon transplantation can be done to substitute for the individual muscle, but always the final balance of the foot must be visualized if hope of good function is to be fulfilled.

One other development which from the satisfaction it gave to both surgeon and patient I wish to mention is that in the treatment of stiffened hand joints. Many times the joints were so badly involved that they seemed almost hopeless. In many instances injuries to the forearm and hand were so complicated by the consequent stiffening of the fingers that even after the primary wound was entirely healed the function of the hand was not much improved. At the beginning hot soaks, massage and exercises were tried with success in a few cases. Then for a while manipulations were used, only to find that frequently the joints were stiffer than before. Next, elastic traction was used, the traction being applied in direction to correct the deformity. This resulted in improvement in a certain number of cases and never made the condition worse. Finally, elastic traction was used, the traction being applied in the line of the deformity. Various splints were devised for this treatment, but the principle of each was the same—a splint on the forearm extending into

the palm as a cock-up to hold the wrist dorsiflexed, and to this a racquet shaped extension was attached. Adhesive plaster strips were applied to the sides of the fingers and from these, elastic bands extended to the racquet. In this way strong traction could be exerted, first to stretch the joint capsules without any attempt to flex the fingers, and only as the capsules became more flexible was any attempt made to gain flexion. The technique is much like that used in treating early tuberculous hips with deformity. To me it was one of the most satisfactory bits of progress made in healing war injuries, and I believe has its use in industrial surgery.

In all our work with bones, joints, nerves and muscles, function is the end sought, and credit must be given to the factors that after the surgeon had done his work took up the task of restoring that function. In all the centers where the treatment of extremity injuries was carried out, the department of physiotherapy played an important part. It was interesting to find that gradually the simpler methods came to be those in which the most reliance was placed. Joints became mobilized, not by forcible manipulation, except in a comparatively few instances, but by stimulating measures, as hot and cold showers, hot whirlpool baths, hot air baking, followed by the most painstaking massage and passive and active movements. The value of active exercise became more and more appreciated, and was exemplified in the so-called curative workshops. In these shops an effort was made to choose an interesting occupation which would cause movement for the affected joints and development for the affected groups of muscles. The value and even necessity of occupation for the mind which these shops furnished was shown by the improved morale of the men. Great credit is due to Sir Robert Jones, who did so much to develop and foster the plans for these shops, and even more credit is due to him for the tremendous inspiration he gave to all surgeons overseas for better and better work.

It is not an easy task to cover in an adequate fashion the advances that five years of intense activity have made in this branch of surgery, and my fashion has been far from adequate, but

I hope I may have brought out some of the methods by which we may treat fractures of the femur more satisfactorily and other fractures with more certainty of good results. A knowledge of the deformities and limitations of movement that often follow the various fractures is the best means of prevention and that could only come from seeing a great many fractures and observing the outcome of various methods. Positions of choice for ankyloses can only be determined by trial, but once worked out, our present patients may have the advantage gained. For osteomyelitis of civil practice, the points learned in war experience are not of marked importance perhaps, except in their showing the value of the most painstaking care in the operative and subsequent treatment. The importance and the role of bone grafts has been emphasized and cases that will be benefited will be chosen with more certainty. Nerve surgery has taught us much in itself, and also from its relation to other disabilities. The surgery of tendon transplantation and fixation is on a more definite foundation and can be approached with a better conception of what it promises than ever before. Stiffened joints of the hands are a little less of a problem in industrial cases than before; and, lastly, the importance of the after-care in extremity surgery was never more realized than now. A correctly set fracture, or a well sutured nerve, or a properly done tendon transplantation or fixation means not much if the after-treatment is not well directed.

#### DISCUSSION OF DR. DANFORTH'S PAPER.

DR. ROBERT B. OSGOOD, Boston, Mass.—I feel it an honor to be asked to come down and discuss Major Danforth's paper. It is more interesting to have an outsider disagree with the paper, but I am not able to do that in this case.

I had the good fortune in the war to see Major Danforth do this work, and it so happened that I was made to sit in a wheel chair most of the time, so that he is far better able than I to discuss the question.

His talk to you about fractures of the femur and the advances in treating the femur were really instructive. The mortality of these cases was usually eighty-three per cent. Finally the

treatment and proper care—the methods which Major Danforth has described to you—became famous, and the mortality dropped down to fifteen per cent. He talked to you about Pott's fracture. There is one thing more that he did not say about Pott's fracture, and I think he will agree with me. It is the tremendous disabling quality of Pott's fracture. One fact that I have realized is that in Pott's fracture you not only have a bone lesion of the malleolus, but you also have strain, and the fracture is quite serious, especially when there is deformity or backward displacement of the foot. This is a very disabling joint fracture, and you notice that patients have almost no inward and outward movement at the ankle. You find that you cannot move the position of the fracture and all the patients complain of a very serious pain when they walk and step, due to injury of the os calcis around the astragalo-calcaneal joint, and just a tiny bit of motion in the foot is felt in the joint.

One word in regard to the bone graft in the forearm. Many bone grafts in the forearm do take, but a splint graft often does not take in the forearm. Practically after four or five months the grafts may show non-union. In the French army in Paris, in place of the bone graft in the forearm they used instead the transplantation of a layer of periosteum one-eighth inch thick (after the method of Professor Chutro), laid over the fracture, after making a bed for it in a section of thin tissue.

One other bone, I think, needs investigation. In transplanting a tendon into the tibia, the tendon may stretch and the foot will drop down again. If you leave a long strip to the tendon it will often stretch. Bury the tendon that you transplant nearly its whole extent in a tunnel in the bone, or at least under the periosteum so that there is not a long strip of free tendon.

Concerning the advance in treatment of stiff fingers, Major Baldwin has worked out a treatment of stiff fingers by traction on the fingers in the direction of the deformity, and the results are very wonderful. If the patient's fingers were stiff and absolutely crippled, he was able to work out extremely useful hands. It is quite remarkable and extremely satisfactory.

I found by chance that a doctor in New York published in 1910 or 1911 a paper on compound fractures in civil life. An operation was per-

formed on the femur and all devitalized tissue was removed. The wound was then sewed up tight. It remained for a little man in France, who was an important French surgeon, to work out the principles of healing thousands of wounds. He worked them quite well in that French hospital, and became convinced that if you get rid of a lot of destroyed tissue and dissect away not simply the good tissue but the devitalized tissue, that good results will be obtained.

Out of ninety per cent of wounds received, eighty per cent were gun shot wounds. The technical work was carried on in the first station, but the wound was not sutured at that time but left open three or four days. It is a shame to admit that, as we have been for years studying the treatment of septic joint wounds. Simple treatment was to keep it sloughing. If you did do an operation on it, it was proved definitely that in a septic joint wound you never want to put drains in the joint, but encourage the man to move the knee himself and thus squeeze all pus out of the joint. The man must be made to move the joint himself. I have seen men working about with open wounds and pus oozing out. Treatment of the joint wounds has taught us that motion is an important method of treatment. After the joint with infection has been washed out thoroughly, and foreign bodies removed, it is almost always safe to close the wound up tight. One other point which I wish to speak of is the question of early treatment of bone casualties. Through the foresight of our chief surgeon we were allowed to be put in control of early bone and joint injuries. Our permanent division surgeon had the corps trained to apply the seven transport splints of the American Army. Our surgery was good but it did not compare with the best surgery of the French and English. But when I tell you that it is fair to say that not more than five or six per cent of our cases came back so you can certainly see that it was a very great gain over the earlier surgery.

DR. ROLAND HAMMOND, Providence, R. I.—The title of this paper has been very well chosen. The war is already such a matter of history that we must consider the medical and surgical knowledge gained during these five years solely from the point of view of its application to civil injuries and diseases. This relationship has

been very well brought out in the paper read and in Dr. Osgood's excellent discussion.

I spent three very instructive months last spring in visiting the various orthopedic centers in the British Isles. From a study of all the various types of injury seen in these hospitals, and from conversation with the surgeons at these institutions, I came to practically the same conclusions which Dr. Danforth has reached with regard to the value of certain procedures. I believe that we must proceed cautiously in taking over into civil practice many of the lessons learned in treating war injuries. These patients were the victims of particularly severe and disabling accidents, the like of which is rarely seen in civil practice, even in the coal mines and steel mills of the Middle West. The treatment of these conditions was developed out of a peculiar need and much of the knowledge gained will soon be forgotten until the next war obliges us to relearn it. This statement applies particularly to conditions like nerve injuries.

I should like to emphasize certain points in the paper. There has been a distinct advance in the handling of certain fractures, especially those of the femur. It must be remembered, however, that these fractures were nearly all compound; that the muscles were shot away and their tone destroyed. The closed fracture of civil practice presents a different problem. The muscle pull is much harder to overcome than in a compound fracture. Here, I believe, is a field for skeletal traction. The chief advantages are that the leg is brought down to length. Knee motion is quickly restored, because the knee is moved daily and because the joint ligaments are not stretched as in other methods of traction. Mild suppuration of the skin, never involving the joint, and lasting forty-eight hours, is reported in 25 per cent of the cases. It is not necessary to put all cases of upper arm fracture to bed and apply traction in abduction. Many such cases are better treated as ambulatory cases. Each fracture presents its own individual problem for solution.

The treatment of osteomyelitis has shown some great advances, but it is questionable if the methods applied to civil cases will give as favorable results, for reasons which the reader mentioned. The Carrel-Dakin method, while a remarkable advance in wound sterilization, must

be simplified before it can give universally good results in widely diversified clinics. The careful preparation of the bone cavity with elimination of pockets is the material advance in the surgery of this disease.

Bone plating has nearly had its death knell in this war, and I trust the obsequies will soon be pronounced. The inlay bone graft has proved its worth on too many occasions to doubt its real value. Intramedullary bone splints are unphysiological, and result more often in non-union.

In the treatment of stiff joints, I should like to point out that the experience in this war has confirmed the experience of orthopedic surgeons for many years, that the forcible manipulation of these joints is productive of much more harm than good. Manipulations should be gentle and the gain of motion gradual, covering a period of weeks rather than minutes.

DR. FRANK E. PECKHAM, Providence, R. I.—There are many things in civil practice, of course, that differ from military conditions. The treatment of the upper end of the humerus for instance. It has been found that simple fractures of the upper end of the humerus can be treated with the arm at the side and not in abduction. It has also been demonstrated with X-ray pictures that fractures of the femur, in the upper, middle and lower thirds, can be treated without ether or plaster and without very much discomfort to the patient. I feel that Dr. Hammond's note of caution should be heeded. There is one thing, though, in which this lesson for reconstruction really should be taken to heart by the medical profession. In the Rhode Island Medical Society there are men of ability, power and brains, who do not get in contact with the large problems of industrial surgery. If all their skill and ability could be put to work, it might show how much good can be done in industrial accidents. If a movement by the general profession and your representative men of skill and success could be met by a similar movement from representative men of commercial standing, it would influence men to demand more efficient treatment of the injuries in industrial accidents. In some of the large plants, as you know, if a man has a fracture of the left wrist, he has a place waiting for him when he is ready to go back to work. If he has a fracture of the

wrist he need not loaf until it is well and then go back to his old job. It seems to me that if the lesson for reconstruction will but turn in the industrial direction, very much good will be done.

#### CHILD WELFARE—YESTERDAY AND TO-DAY.\*

By ELIZABETH M. GARDINER, M. D.,  
Providence, R. I.

The general child welfare problem, as we all know it, is but one phase of a program of public health work, and if not the most important at this time, then certainly it is the most promising of results of all field of endeavor in the realm of preventive medicine. As a subdivision of social welfare, we see linked up with it, either contributing toward, or set in opposition to it, every health, social and economic factor of our present civilization—to guarantee the general welfare of children, one must indeed delve deeply into human experience, its failures and achievements; consider with no little output of judicial sense every section of that mosaic which we call environment; indeed we must go further and throw the searchlight of science and knowledge into that period, the pre-natal state, considering the unborn as well as the born.

The conservation of child life is only now properly gripping the minds as well as the hearts of thinking people. Of course, the child in need of special care has for a long time been the object of much study and effort on the part of far-seeing individuals and organizations, and while the work on behalf of the child in industry might be said to have initiated child welfare work, this type of child—the dependent, neglected, defective child, in its very appeal of helplessness and lack of promise, has been the inspiration of the whole child welfare movement as we know it to-day.

Ten years ago, in 1909, there took place in Washington, an event of deepest significance to all children; it was described as a conference on child welfare, and was later referred to as the "White House Conference," to which were brought at the invitation of President Theodore Roosevelt, men and women from every state in the union, who were actively engaged in the

\* Read before the Providence Medical Association, November 3, 1919.



care of the dependent child. Eleven of the set of thirteen conclusions arrived at by the conference dealt with some phase of the care and disposition of the *dependent child*. In the twelfth and thirteenth of these conclusions we see evidences of the realization on the part of these workers for children that a task of great breadth and depth lay before them. In the twelfth conclusion, they voice their approval, as a body, of the establishment of a Federal Bureau, which should be called the Children's Bureau, whose duties would be somewhat as follows—"to investigate upon *all* matters pertaining to the welfare of children and child life, to especially investigate the questions of infant mortality, the birth rate, physical degeneracy, orphanage, juvenile delinquency and juvenile courts, desertion and illegitimacy, dangerous occupations, accidents and diseases of children of the working classes, employment, legislation affecting children in the several states and territories, and such other facts as might have a bearing upon the health, efficiency, character and training of children." The thirteenth conclusion advised the sending of a special message to Congress, with the idea of hastening the establishment of such a bureau.

At first glance this would seem like a very sudden and wide outgrowth from the interests of the dependent child, its care and custody; but one may readily imagine that in the interchange of ideas and experiences which took place at this great conference the number and variety of problems discussed and dealt with made it more and more evident that in dealing with any phase of child welfare all the factors concerning all children come into play. If it were possible to lessen existing evils, the preventable ones had to be eliminated, and if there was to be any value and the greatest value to prevention, it must be started at the very beginning.

That the Children's Federal Bureau was established and has since magnificently justified its existence goes without saying; that the bureau has gone deeply into the study of the casual factors regarding infant and maternal mortality and child wastage of all types is shown by the character and number of publications issued by them since its establishment. Its activities in the way of propaganda are well and favorably

known, and yet we are conscious within the last two or three years that the child and all matters concerned with its well-being are brought more and more sharply to the foreground of public attention. Not only are social workers, physicians and educators deeply immersed in its study, but in all parts of this broad land the laypeople are intensely interested. Magazines and periodicals devote whole sections to the child in every issue; parents are watching their children more closely, demanding health information for themselves and health supervision for their children while at school; industrial interests are finding it expedient to protect the expectant mother, restricting her hours of labor and preventing her working in factory and shop during the latter months of pregnancy, in order to better insure safely born children; insurance companies find that it is money well spent to endow typical industrial localities with the necessary funds to carry on demonstration health-conservation activities, in which child saving work takes a prominent part.

The whole world is beginning to bestir itself, to shake off, one by one, the shackles of fatalism and old-time superstitions that have hampered and delayed things for so long: It is setting aside the theory that the weakling is a necessary refuse of each age's progress, and why waste time, money and energy on its short span of life? It now believes and knows that it is better and safer to prevent its short and useless existence by prevention of marriage between the unfit: (We have only to scan the marriage laws of our own Rhode Island to see how little protection the unborn is afforded against being born a defective, mentally and physically).

In the spring of this year we find another child welfare conference being held in Washington, and to make it a proper and fitting anniversary of that famous "White House Conference," it was international in character. Other meetings, regional in distribution, were subsequently arranged. The conferences were held in the largest cities of the United States; representatives from England, France, Belgium, Italy, Serbia and Canada all came to pool their experiences in child care during the war period, so that we might benefit by them and that cer-

tain irreducible minimum standards for the welfare, of children, applicable to all countries might be worked out. With that end in view, the preliminary conference in Washington divided into three sections:

1. Child labor and education.
2. Public protection of the health of mothers and children.
3. Children in need of special care.

These standards have since been issued and are available, upon request to the Children's Bureau. It takes but a brief glance at these standards to impress one with their completeness, the great growth of sympathetic as well as scientific understanding of the complex problems involved. One is struck, too, with the great part that health protection has taken in their framing. This is particularly evident in that section concerned with the public protection of health of mothers and children. These standards would establish maternity centers and hospitals, public nursing, control of midwives, trained household attendants to care, under supervision, for the patient and the home during confinement, the provision of economic relief where necessary, and, of course, an educational health program for parents and for the general public. An extensive code is set forth in these standards by the application of which lives of hundreds of thousands of children might be salvaged.

It used to be said that once a child is born, the parents and the state must accept the responsibility for its well-being. We now go a step further. The very fact that state after state in this country is creating new departments for child welfare activities is evidence enough that the state recognizes its obligation to afford to every mother the necessary education and health facilities to insure a safely born child.

It is natural when considering all these advances to inquire as to the why and wherefore of this growing sense of responsibility, this intensive study on the part of governments and statesmen. It is, of course, a natural by-product of a great and disastrous war. As one writer expresses it, "In that complacent period previous to 1914 it seemed possible for statesmen to ignore the existence of children; what happened to millions of young people was of little interest to governments, and it is perhaps

safe to say that before the great war no cabinet meeting of any great Power had at any time devoted its full attention to the national problems raised by the very existence of children. To be sure, states and cities planned more or less for the welfare of children, but statesmen had no interest in them—there was no such thing as national responsibility for children." "Now, it is common knowledge among the neutral as well as the belligerent nations that the neglect of children is not compatible with national safety, either in war or in peace. We had but to attempt to mobilize our youth for purpose military or industrial to see glaring evidences of public neglect," one might say, loss of public opportunity.

It would be tiresome to go into army rejections and their causes, but, roughly, it is safe to say that the greater portion of them represented preventable childhood diseases, which we neglected to prevent; which in the old days we were too niggardly to appropriate sufficient funds to prevent in our states and cities. If this could be taken as an example of a "penny saved is a penny earned," then what a wonderfully profitable speculation would it not have been to have spent that penny for child health and saved that man power to the country.

We know without going into figures that along with the Allies we lost during the war period thousands of our most promising citizens—the finest physically, finest in spirit that we were able to produce. A great many more potential parents, and therefore potential future citizens, were lost during the influenza epidemic of a year ago; the number of children lost to us, represented in these two causes alone, is not to be estimated, but we know that it must be many thousands. These bespeak but two types of child wastage. We know there are others, directly or indirectly connected with the war period—great reduction in the numbers of immigrants to the country, increased emigration—whole families leaving our shores; but, aside from these, day by day "poverty and disease, ignorance and neglect, silently accumulate losses, beside which these war losses seem negligible."

The two great slogans in use since our entrance into the war to the present day have been

"Conservation and Thrift." Not only does that apply to those very material things of our existence, but to child life: We are confronted to-day, not merely with the necessity for preservation of a national supremacy, or whatever you might term our degree of world dominance, but the preservation of our national identity and existence.

We are to-day in a great maelstrom of—who shall say what untoward events; we are menaced from within and without. Of the nature of our perils from without we know little; of the character of those from within we know much, but need to know more. In the resentfulness which we are all apt to harbor against those of our citizens who have failed to grasp the American handclasp of good friend and neighbor let us not forget that "the cradle and the hearth are mightier than either pen or sword in the ultimate creation of nationality, for from them alone and on them alone can greatness be built."

### CLINICAL DEPARTMENT

#### ERYTHEMA MULTIFORME FOLLOWING DIPHTHERIA ANTITOXIN.\*

By DENNETT L. RICHARDSON, M. D.  
Providence, R. I.

Jacob A., age four years, was taken sick October 21, 1919, with diphtheria and admitted to Providence City Hospital, October 23. He was very slightly ill with a sore throat which was red, but there was no membrane present. His cultures were positive and a brother was admitted October 30 with a mild sore throat and positive cultures. On October 23, he was given 20,000 units of antitoxin intramuscularly. On November 7, or two weeks later, he developed a well

marked urticarial eruption. This eruption very rapidly changed in character, the lesions ranging from one half to three or four cm. in diameter, the smaller ones being circular with white centres and the larger ones irregularly oval. The edges were raised. The color was a dull red contrasting with white centres. There was some itching and a rise in temperature to 100.5° F.

At the height of the eruption, vesicles and small blebs appeared, which later became pustular and were slow in clearing up. The eruption faded out leaving well marged staining of the skin while the pustulation persisted for about three weeks from the beginning of the eruption.

DIAGNOSIS: Erythema multiforme (caused by diphtheria antitoxin).

COMMENT: Rashes following antitoxin administration practically always are urticarias. Rarely, other kinds of rashes develop of which this is an example.

#### MEASLES CONTRACTED IN UTERO.

Madelina A., 21 years old, was taken sick on May 14, 1917, with fever, sore throat, vomiting, and cough. She was admitted to the hospital May 21, having been in bed only one day. She had a rash on her body one day old. There were Koplick spots in her mouth, on admission, and her body was covered with a typical measles eruption. The subsequent course of the disease was that of ordinary measles.

On May 23, this patient, who was pregnant, gave birth to a normal baby. On May 30, the child developed a measles eruption. The rash faded on June 3. There was a temperature of 99½ to 101 degrees for four days. No Koplick spots were seen. The child seemed only slightly ill.

COMMENT: Either this child did not have measles or else was infected in utero, probably infected about May 16.

\* Read before the Rhode Island Medical Society, December 4, 1919.



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## EDITORIALS

### THE ENCORE.

With this issue the RHODE ISLAND MEDICAL JOURNAL, after an enforced suspension of slightly more than a year, again resumes publication. It is a source of regret that the JOURNAL was obliged to suspend publication. The entrance of the business manager and two members of the Editorial Staff into the service imposed an added burden on the remainder of the staff. The faithful guard, who assumed extra duties at home that others might go to the front,

found that the publication of the MEDICAL JOURNAL would be the straw which would eventually break the camel's back. Consequently they wisely decided not to attempt it.

Now that the smoke of battle is cleared away and everyone is back home again trying to pick up the loose ends of a practice, the need of a Journal which shall have a strong appeal for the physicians of the State has become more and more evident. After careful deliberation and thorough investigation, the Committee on Publication has decided that it is advisable to revive the JOURNAL. A Medical Journal is a



distinct asset in any state, and about two-thirds of the states have such publications. In Rhode Island the JOURNAL serves as a convenient medium for publishing the transactions of the State society. These transactions are published monthly in convenient form and are a great improvement over the bound volume which appears but once a year. By the time this volume was issued the articles were nearly out of date, whereas the papers read at our meetings now appear in print a short time after they are read. The JOURNAL is a distinct advantage to the Medical Library by bringing to it many exchanges which would otherwise be missed by the readers. The library is in a position to subscribe for only a limited number of the journals.

The new business manager, Dr. W. A. Risk, has entered upon his work with commendable zeal. His efficient service as Treasurer of the State and city societies for many years assures us that the business end will be carefully administered. Advertising is the vital part of any publication, and every member of the society should consider himself a committee of one in the position of an assistant business manager. In many ways the physician can aid in securing advertisements, and he can always make the advertiser feel that his money has been well spent by commenting on the advertisement when the opportunity presents itself.

The Editorial Staff remains the same. The policy will be the same as heretofore. We wish every physician in the state to feel that this is his journal and that it is not published for any one section or any one group of men. We shall attack fearlessly any abuse or irregularities of medical practice or administration at all times. We shall likewise praise that which deserves praise. In our efforts we expect the support of the profession of the State in the hopes that they may find the JOURNAL a depository of the medical progress in these plantations.

#### WHAT IS THE MATTER WITH OUR MEDICAL MEETINGS?

Something is radically wrong with our medical meetings. For several years there has been a tendency in our society meetings to quote, "Let George Do it." This criticism applies not only to papers read, but to attendance. A

study of the secretary's records for the past few years will show that comparatively few local men have contributed to the literary programs of these meetings. Every president is at his wit's end to secure speakers for the succeeding meeting. His tenure of office is often a nightmare for this reason. There is plenty of clinical material in this state and plenty of literary ability to present a paper before any medical society in an able manner. Those who are capable of such efforts are not willing to make the sacrifice of time and labor. The societies are now so large that the president is unable to know the work or literary ability of all the members, and he is obliged to limit his invitations to men who come within his personal knowledge. Any member who has a paper which he desires to put before this society or knows of any suitable paper which can properly be read before the society should notify the president.

In the matter of attendance at meetings, we have a situation which is fast becoming critical. All of our meetings are much more poorly attended than they were a few years ago. The same faithful few may be seen at each meeting, keenly interested in the success of the meeting and of the society. We know many who come as often as possible and we know others who never come. It is only when a prominent physician from out of the state or when a well advertised picture show is on the cards that a large attendance can be assured. Another reason, we assume, for the smaller attendance of late is the poor quality of the luncheons served at some of our meetings. It is not only the army which travels on its stomach. All gatherings of men, whatever their profession, must provide substantial luncheons to be truly successful. It may be a sad commentary on human nature, but it is nevertheless true, and we must face it. If more delectable food will encourage better attendance at meetings, by all means let us have it. It is money well spent. The social half-hour in the supper room is of more value in promoting good fellowship and better understanding among the members of the profession than any other phase of professional life.

Medical societies are the cornerstones of the

profession. Without them we should quickly and hopelessly deteriorate. Let us encourage in every way a better attendance at meetings and the reading of more papers by home talent. The responsibility rests on every individual member.

#### FOR ALL THE STATE.

The editor wishes to point out with emphasis that this JOURNAL is for the state and not for a particular city or community in the state. If the JOURNAL is to fulfill its function it must have the support of the members of the medical profession all over Rhode Island. It is of as much interest to know what is happening in the Kent and Newport District societies as in those of Providence or Woonsocket. This opportunity, therefore, is taken to call to the attention of all the district societies, and especially of their secretaries, the desire on the part of the editorial staff to make this truly a RHODE ISLAND MEDICAL JOURNAL. The secretaries are earnestly urged to send a written report of their transactions that they may be published in the Journal and so make a permanent and complete record of the medical activities in the state. To the members of all the district societies we appeal for support. In the past, circumstances have made it appear that only papers read at medical societies' meeting in Providence were published in the JOURNAL. It is desired that every medical man who presents a paper before his district society will see that his paper is sent to the Journal and so made available for publication.

#### THE NEW PHYSIOLOGY.

The abiding worth and marvelous originality of Greek modes of thought are more striking to-day than at any time in human history. Men have lived long enough now to have followed as disciples other masters and to have found them wanting either wholly or in part, and this because such masters have lacked the directness of vision and the sweep of imagination that marked Greek thinkers. Contemporary philosophy, after many wanderings in the wilderness, is returning to Aristotle and contemporary medicine is learning once again

of Hippocrates and Galen. We hear much recent talk concerning biological conceptions of disease, the unity of the living organism and the adaptation of the organism to its environment; all of which is essentially Greek and so what appears at first sight to be new is really very old. While we have changed the answers to our problems, our methods of approach to them have changed but little, if at all.

Many of us who were taught the orthodox physiology of the last fifty years, the physiology of the school of Huxley, have often felt that there was something wrong with it, although what that something was we were not able perhaps to say. The elaborate paraphernalia of physics and chemistry with which we were supplied seemed somehow to fail us at the bedsides of sick patients; we knew so many things but in truth they appeared to be not just the things we wanted there and then to know. The result was that a gap developed and still exists between physiology and practical medicine and surgery. In the opinion of Professor J. S. Haldane, this gap will continue to exist until students are taught what he calls the New Physiology.\*

And what is this New Physiology? It is Greek Physiology come to life again, not indeed as to its matter, but as to its spirit, teaching that the human body cannot be adequately described as a mere congeries of physical and chemical processes, but must be regarded as an unitary living organism whose business it is to maintain its normal structure and function against an ever changing environment. It is not enough to know physiological processes in isolation; you must study them in their relations to one another and to the whole of which they are the parts. As Professor Haldane expresses it, "Any form of Physiological activity is presumably related essentially, and not accidentally, to the other details of activity and structure in the same organism. Stated generally, therefore, the problem of physiology is not to obtain piece-meal physico-chemical explanations of physiological processes, but to discover by observation and experiment the relatedness to one another of all the details of

\*The New Physiology and other Addresses, by J. S. Haldane, M.D., LL.D., F. R. S., Philadelphia, J. B. Lippincott Co., 1919.

structure and activity in each organism as expressions of its *nature* as an organism." The mechanistic physiology so largely in vogue at present fails to do this and just here lies its most serious defect. If we look through an average existing text-book of physiology, we find a great deal about the effects of this or that stimulus, a great deal also about the external mechanism and chemistry of bodily activity—a great deal, in other words about what lies on the surface, but never takes us further. Along with this there are perhaps also some inconclusive discussions of the possible mechanism of such processes as physiological oxidation, secretion, growth, muscular contraction or nervous activity. Very little, however, will be found about the maintenance within and around the body of normal and organized structure and function.

But medicine is supremely interested in this physiological normal. What a man sees at the bedside is a perversion of the normal and Nature's attempts to restore it, with what assistance medicine can give. For medicine it is necessary to know the normal in its elastic and active organization. But the mechanistic physiology gives a minimum of information about the maintenance of the normal. One looks in vain in physiological text-books for the accounts of the regulation of breathing, circulation, kidney activity, general metabolism, and nervous functioning. The main facts of physiology are partly ignored and partly strewn about in hopeless disconnection and confusion. Hence it follows that what we learn in our physiological text-books helps us less than it should in practice. The new physiology will attempt to remedy these deficiencies by teaching us what health and disease really mean and how the body actually maintains itself under the ordinarily varying conditions of its environment.

All this is very interesting and we have quoted Professor Haldane to illustrate how very old is the new. Did not Galen have the keenest appreciation of the unity of the organism and of the inter-dependence of its parts? He placed it at the center of his medical thinking. Moreover was it not axiomatic with him that vital phenomena (physiological and pathological) can be understood only when considered in relation to the environment of that organism or part? And lastly did he not quarrel constantly with

Asclepiades and the Methodists because they said that absorption of food, the processes of respiration and the action of the kidneys could be explained on purely physical principles?

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#### IMPROVE OUR CLINICS.

It is probable that but few of the citizens of Rhode Island who give of their time or money for the support of any of our hospitals or dispensaries which care for the sick poor, realize the extent to which they are conferring a benefit upon the sick rich, and indeed, upon all those who, when ill, are accustomed to depend upon the advice of a regular practitioner of medicine. This is because ninety per cent. of all progress in medicine is achieved in the free clinics; and by the character and equipment of these clinics, as well as the enthusiasm, ability and training of their visiting staffs, medical progress in the community is limited. Of what avail are experience, energy and ability to the carpenter who lacks adequate tools? If Rhode Islanders are to have the benefit of modern medical and surgical methods their hospitals must be supplied with the most up-to-date equipment; men must be found who can qualify themselves in the use of this equipment, and above all the spirit of conservative scientific investigation must be fostered. At present such conditions do not obtain. If, in the future, our hospitals are to be manned by internes who are first, second or even third rate men in ability and training, these hospitals must be able to offer them the opportunity of qualifying themselves in the medical and surgical procedure of the present day;—and furthermore, if we, as physicians, are to serve the community as we should and give our patients the benefit of twentieth and not nineteenth century medicine, the present condition of affairs must be altered.

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#### DINNER TO SERVICE MEN.

The complimentary dinner tendered by the medical profession of the State to the physicians of Rhode Island who had served in the Medical Corps of the Army and Navy was one of the largest and most successful gatherings of medical men ever assembled within our midst.

Armistice Day was happily chosen as the most appropriate occasion for such a hearty welcome home. The dinner was excellent. The speeches, which were in lighter vein, all reflected the spirit of patriotism, which was the moving force of the day. The entertainment was varied and thoroughly enjoyable. It is difficult to estimate the influence for good which such a gathering of the profession creates. The more we see of each other in a social way the better for ourselves and the better for the community we serve. The great need of the profession is unity of purpose and of fellowship. Nothing tends to promote this beneficial spirit so well as an assemblage as that like on Armistice Day.

### SOCIETY MEETINGS

#### RHODE ISLAND MEDICAL SOCIETY.

Quarterly Meeting, September 4, 1919, at Pawtucket Memorial Hospital, Pawtucket, R. I.

By invitation of the trustees of the Pawtucket Memorial Hospital, this meeting was held at that place. There were medical, surgical, urologic and orthopedic clinics in the forenoon, followed by a clam bake at 1 p. m.

The business meeting was called to order at 3 p. m., the president, Dr. J. M. Peters, in the chair.

In the absence of the secretary, Dr. H. G. Partridge was elected secretary *pro tem*.

The records of the last meeting were read and approved. The following papers were read:

1. The Pathology of Influenza, by Dr. Medler, Pathologist to the Rhode Island Hospital.
2. Influenza in Hospitals, by Dr. G. S. Mathews.
3. Vaccines and Serum in Relation to Influenza, by Dr. F. T. Fulton.
4. Influenza in Private Practice, by Dr. Henry A. Cooke. Discussed by Drs. Hartwell, H. A. Jones, Jay Perkins and others.

Mrs. Donald Churchill spoke briefly regarding the matter of military rank for nurses, engaged in army nursing.

A rising vote of thanks was tendered the trustees and officials of the Pawtucket Memorial

Hospital for their generous hospitality.

On motion adjourned.

H. G. PARTRIDGE,  
*Secy. pro tem.*

#### REPORT OF THE COUNCIL MEETING.

The regular meeting of the council was held this day, November 20, 1919, Dr. J. M. Peters, president, presiding.

The minutes of the previous meeting were read and approved.

It was voted that it be recommended that the House of Delegates fix the annual dues for the current year at \$10, and that \$1 per member annually be appropriated from the treasury toward the support of the RHODE ISLAND MEDICAL JOURNAL.

It was voted to recommend that the House of Delegates employ an official stenographer, at an expense of not more than \$10 per meeting, to record the transactions of the meetings.

The council recommended that a committee composed of the secretary of the Rhode Island Medical Society, and the secretaries of the district medical societies be a committee to increase the membership of the State society.

Dr. Hoyer presented the treasurer's budget for 1920 which was approved.

#### BUDGET 1920.

Printing and Postage.....	\$ 150 00
Interest .....	144 00
Librarian .....	1000 00
Janitor .....	360 00
Gas and electricity.....	125 00
Fuel .....	450 00
*Collations .....	500 00
Books and binding .....	50 00
Repairs and supplies .....	250 00
Insurance .....	16 00
Safe deposit .....	5 00
City water .....	15 00
Telephones .....	75 00
Unforeseen liabilities .....	300 00
Publication .....	400 00
Stenographer .....	40 00
	<hr/>
	\$3880 00

\*If annual dinner given.

It was voted that the fees of the trustees of the Fisk Fund S. A., which have been donated by the trustees to the society, be placed to the credit of the Endowment Fund.

Adjourned.

J. W. LEECH, M. D., *Secretary.*



## HOUSE OF DELEGATES.

The House of Delegates met this day, November 20, 1919, at the Medical Library, Dr. J. M. Peters, president, in the chair.

The report of the council meeting just preceding, was read by the secretary.

The recommendation of the council was read and approved as follows:

1. That the annual dues for the coming year be fixed at \$10, and that the appropriation of \$1 per member annually be appropriated from the treasury toward the support of the RHODE ISLAND MEDICAL JOURNAL.

2. That an official stenographer be employed at an expense of not more than \$10 per meeting to report the transactions of the meetings.

3. That a committee to increase the membership of the State society, composed of the secretary of the Rhode Island Medical Society, and the secretaries of the district medical societies be formed.

4. That the treasurer's budget for the ensuing year total \$3880, be adopted.

A communication from the A. M. Association requesting information and coöperation in the formation of graduate instruction to the members of the State society, was referred to the committee on hospitals.

Adjourned.

J. W. LEECH, M. D., *Secretary*.

## QUARTERLY MEETING.

R. I. MEDICAL SOCIETY LIBRARY BUILDING.

December 4, 1919.

The regular quarterly meeting was held December 4, 1919, at the Library Building, Dr. John M. Peters, President, in the chair.

The meeting was called to order at 4:15 p. m., and the minutes of the September meeting, and the report of the proceedings of the House of Delegates, were read by the Secretary.

The President made the following appointments:

Anniversary Chairman—Dr. George W. Van Benschooten.

Member-at-Large, Board of Trustees Medical Library—Dr. Fenwick G. Taggart.

Delegates to Medical Societies: 1—Maine, Dr. W. B. Cutts, Dr. G. E. Simpson; 2—New Hampshire, Dr. A. H. Ruggles, Dr. N. C. Baker; 3—Vermont, Dr. M. P. Mahoney, Dr. E. B.

Fuller; 4—Massachusetts, Dr. W. F. Barry, Dr. S. M. Bennett; 5—Connecticut, Dr. C. S. Christie, Dr. C. G. Savage.

The President announced the death of Dr. George D. Hersey, for years a Fellow and former officer of this society. Dr. W. R. White presented a memorial of Dr. Hersey and by a rising vote the Secretary was instructed to send a copy to the family.

A paper "Advances in the Surgery of the Extremities during the War," was presented by Dr. Murray S. Danforth, Providence. Discussion was opened by Drs. Robert B. Osgood, Boston, and Roland Hammond, Providence, and continued by Dr. F. E. Peckham.

CASE REPORTS: Dr. F. T. Calef presented specimen and photographs of fetal monstrosity.

Dr. D. L. Richardson reported a fatal case of smallpox occurring in a nurse not protected by vaccination; a case of woman with measles, who gave birth to a child which developed a measles rash soon after birth.

Dr. G. S. Mathews reported a case suggesting typhoid and a second case of pneumonia with abdominal symptoms predominating.

A collation was served after a motion to adjourn in verse by Dr. William R. White, voted by acclamation.

J. W. LEECH, M. D., *Secretary*.

## HOSPITALS

## RHODE ISLAND HOSPITAL.

The annual meeting of the Staff Association was held at the hospital, December 8, 1919, at 9 p. m. Dr. N. Darrell Harvey was elected President, and Dr. Norman C. Baker, Secretary. The members of the staff selected terms of service for the succeeding year. Considerable discussion of a contemplated new system of records followed.

## MISCELLANEOUS

## A CALL FOR NATION-WIDE HEALTH CONSERVATION.

Preventable disease, cost the United States four billion dollars less in 1917 than it would had the health conditions of 20 years ago prevailed in 1917.

Four hundred thousand less deaths occurred in 1917 than would have, had the 1900 death rate prevailed.

Annual illness of workers still costs this country two billion dollars each year.

One man in every three called by the Army was found to be physically unfit.

These figures were given out by Surgeon General Rupert Blue of the United States Public Health Service, in urging a plan for nation-wide conservation of health and calling on all health agencies to cooperate in a carefully prepared program.

Surgeon General Blue has sent a letter to State and city health officers, to the head of the American Red Cross, the American Public Health Association, the American Medical Association, the National Tuberculosis Association, the International Health Commission, the National Safety Council, the American Child Hygiene Association, and other health agencies, suggesting a conference in Washington to consider a health program prepared by the Public Health Service.

The Surgeon General points out that practically all of these agencies have under consideration some plan of health conservation and that unless the work can be coordinated and properly directed, little will be accomplished and there will be much over-lapping of effort and waste of funds.

It is emphasized that the success of the plan will be determined by its direct applicability to the conditions in the different local communities and for this reason Federal, State and local health officers must cooperate most closely in order to direct the campaign in each community and set a definite objective.

For instance, a Southern city would be more interested in a campaign against the mosquito and malaria than it would be in Rocky Mountain spotted fever. A Northern industrial city would be more interested in the control of pneumonia and respiratory diseases. All, however, have cancer, tuberculosis and venereal diseases; all would be benefited by public health nursing, medical supervision of school children, conservation of the lives of mothers and children, adequate sewage disposal, the provision of pure water and pure milk. So, while each city and rural community will have as a definite objective the most vital need in that particular place, the various health agencies will have definite objectives according to the particular problem they set for themselves to solve.

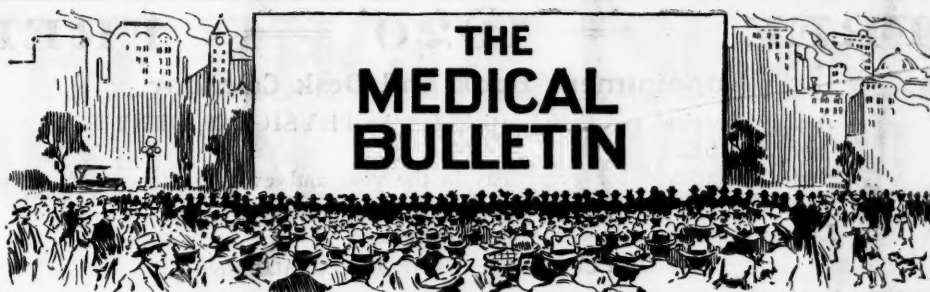
The health program to be submitted to the conference has been in preparation for months, experts of the Public Health Service long having foreseen the need of such a nation-wide effort. A preliminary announcement of the plan was made at New Orleans at the recent meeting of the American Public Health Association which gave unanimous endorsement.

Few realize what has already been accomplished in the field of preventive medicine or what can be done by a carefully executed health program which is cumulative and continuous rather than spasmodic and desultory in character.

In 1900 the general death rate from all causes in the United States was 17.8;—in 1917, the latest figures available, it had been reduced to 14.2. Had the 1900 death rate prevailed in 1917, there would have been in the United States, with an estimated population of 110 million, 396,000 more deaths than actually occurred.

The record of other years leaves little room to doubt what may be done in saving life. In 1900 typhoid fever caused a death rate of 33.8 per 100,000 population. In 1917 the rate had been reduced to 13.4. Diphtheria was reduced from 35.4 to 16.5 in the same period. Tuberculosis declined from 190.5 deaths per 100,000 of population in 1900, to 146.4 in 1917. Had the 1900 rate prevailed in typhoid fever, diphtheria and tuberculosis, in 1917 these three diseases alone would have caused 91,740 more deaths than actually occurred.

The Public Health Service is led to believe that its health program is feasible, owing to the fortunate cooperation and successful termination of the extra cantonment work which was carried on so efficiently by the American Red Cross, State and local health authorities and the United States Public Health Service. The lesson taught by this splendid demonstration of team work should not be lost to the country. For this reason, the American Red Cross, which has set aside millions of dollars for health work in the United States, has been asked to take an active part in translating the health program into action. Its thousands of local chapters are counted on to arouse and maintain interest in health work and actively cooperate with Federal, State and local health officers in accordance with the announced policy of the American Red Cross to cooperate with existing health agencies.



PERTINENT PARAGRAPHS FOR PHYSICIANS. QUICKLY READ AND EASILY DIGESTED

### What Is Cinchophen?

Cinchophen, Abbott, is Phenylcinchoninic Acid, introduced as Atophan, under which name it secured wide popularity among the medical profession. Cinchophen, Abbott, has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association, and was ordered in large quantities during the war by the United States Government.

Cinchophen, Abbott, stimulates the kidneys so as to increase the amount of urine, and has a selective action on the excretion of uric acid, which is increased in greater ratio than the increase in the amount of urine. Cinchophen, therefore, effects a reduction of the uric acid content of the blood.

Cinchophen, Abbott, is useful wherever it is desirable to increase the flow of urine and the excretion of uric acid. Indications for its use are gout, rheumatism, sciatica, neuritis, and gonorrheal joint disease. In gouty conditions it is generally admitted to be the remedy of greatest value.

### The Seriousness of Sleep

Every doctor has seen how wakeful nights wear out a patient's strength and how a few hours of sound, refreshing slumber change the patient from a nervous wreck into a cheerful, reasonable human being. Many remedies have been used for the induction of sleep, but most of them have been superseded by Barbitol, or, as it was formerly known, Veronal. This remedy is efficient, it is nearly free from depressant action, and, under normal conditions it does not induce habit formation. So important is this remedy that when German Veronal was unobtainable in this country, several American manufacturing houses were asked by the United States Government to undertake the problem of its manufacture. The Abbott Laboratories was one of these, and working under great difficulties, it

was able to produce large quantities of it for the American Government for our soldiers and sailors, and it is now manufacturing Barbitol of the best quality in quantities large enough to meet the civil demands.

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